

| Notice of Allowability | Application No. | Applicant(s) | m ____ |
|-------------------------------|---------------------|------------------|-----------|
| | 09/603,053 | SHIMANUKI ET AL. | |
| | Examiner | Art Unit | |
| | Jonathan S. Crepeau | 1746 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to amendment of 3/22/04.
2. The allowed claim(s) is/are 1,4,7 and 9.
3. The drawings filed on 26 June 2000 are accepted by the Examiner.
4. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All
 - b) Some*
 - c) None
 of the:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) hereto or 2) to Paper No./Mail Date _____.
 - (b) including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
7. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. Notice of References Cited (PTO-892)
2. Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____.
4. Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. Notice of Informal Patent Application (PTO-152)
6. Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. Examiner's Amendment/Comment
8. Examiner's Statement of Reasons for Allowance
9. Other _____.

DETAILED ACTION

Allowable Subject Matter

1. Claims 1, 4, 7, and 9 are allowed.
2. The following is a statement of reasons for the indication of allowable subject matter (the reasons are the same as those set forth in the previous Office action but are reiterated below):

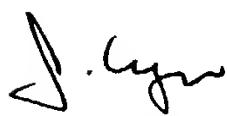
Claims 1 and 7 recite, among other features, that the output of the pump is controlled on the basis of information detected by the means for detecting current or voltage. Claim 4 recites, among other features, that the output of the cooling fan is controlled on the basis of information detected by the means for detecting current or voltage. As previously set forth, JP 11-40180 teaches a fuel cell system comprising a cooling loop comprising a pump and a fan. However, the reference does not teach that the pump and the fan are controlled responsive to the current or voltage of the fuel cell stack. JP 11-339830 teaches a stack current detector (10) for controlling a valve (42) in a fuel cell cooling loop. However, there would not be sufficient motivation to use the current detector of JP '830 to measure the current of the stack of JP '180 and control the fan and the pump. The cooling loop of JP '830 is a primary fuel cell cooling loop, i.e., it circulates coolant directly to the fuel cell. The cooling loop of JP '180 which contains the pump and fan is a secondary cooling loop, i.e., it performs heat exchange with the primary cooling loop and with exhaust streams from the fuel cell. Thus, since the current sensor of JP '830 is only used in connection with the primary cooling loop, there would not be sufficient motivation to apply this teaching to the secondary cooling loop of JP '180. Accordingly, claims 1, 4, 7, and 9 are allowable.

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski, can be reached at (571) 272-1302. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jonathan Crepeau
Patent Examiner
Art Unit 1746
April 11, 2004